

REMARKS

Claims 1-8 are pending in the application. Claims 1-8 are rejected.

Claim 3 has been canceled herein.

Independent claims 1 and 7 have been amended more clearly recite the claimed invention.

Claims 1 and 7 have been amended to add subject matter of claim 3 therein. Additional support for amended claims 1 and 7 can be found on page 21, lines 13-19 of the specification and Figs. 2, 7 and 9-11 of the drawings.

The title of the invention has been changed as suggested by the Examiner. Figs. 3, 5, 13, 15, 16, 17, 18 and 19 have been amended to remove unnecessary matter therefrom. The abstract of the Disclosure has been amended to overcome the Examiner's objection thereto.

Claims 1-6 are rejected under 35 U.S.C. § 103 as being unpatentable over Doughty (4,551,581) in view of Tabu et al. (JP 362,078,941A). Claims 7 and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over Doughty in view of Tabu et al.

In the Office Action it's asserted that Doughty teaches a method and apparatus for outputting a ringing signal, which includes a ringing voltage generating means, ringing signal sending means and data transfer means.

In the Office Action it's admitted that Doughty fails to mention a feed impedance setting means for providing a high impedance feed voltage and feed impedance selection means for selecting a low-impedance feed voltage for a silent period with data being transferred and selecting a high-impedance feed during silent periods with no data being transferred.

Tabu is relied upon to teach a call signal transmission circuit with means for selecting a high or low voltage feed impedance and that a high impedance voltage feed during the silent periods of the ringing cycle can help reduce transient impulse noise. It is concluded in the Office Action that it

would have been obvious to a skilled artisan to help reduce the impulse noise in the system by providing a low impedance feed when the ringing signal is present and a high impedance feed at the beginning or end of the ring signal or during a period in which no ringing signal is present.

As noted by the Examiner Doughty fails to suggest feed impedance setting means and feed impedance selection means of the present invention.

Referring now to Tabu, this reference teaches a noise suppression technique that uses a variable-resistance element 100 inserted in series with the ringing tone generator (5, 6, 7). The variable-resistance element 100 is controlled by an external signal, such that its resistance will gradually decrease and increase at the beginning and end of each ringing period, respectively.

As can be seen from Fig. 1 of Tabu, the variable-resistance element 100 is disposed between the ringing signal generator and a relay contact 4 (also shown in Fig. 2) on the line. The subscriber line is directly connected to the supply circuit 3 during silent periods. The variable-resistance element 100 takes effect only at the beginning and end of each ringing period.

Tabu reference specifically sets forth the transmission control means 200 which decreases the resistance value of variable resistor 100 after the call signal has started and increases immediately before said call signal transmission stops.

Contrary to Tabu , as recited now in claims 1 and 7, the feed impedance selection means selects a high-impedance feed voltage in silent periods during which no ringing signal is available, and the feed impedance setting means provides a high-impedance feed voltage to the subscriber line when so instructed by the feed impedance selection means. This high-impedance feed voltage is realized by inserting a predetermined resistance on the subscriber line in series with a subscriber line circuit (SLIC) that drives the subscriber line.

It should be emphasized that according to the present invention, to create a high-impedance feed condition, a predetermined resistance is inserted on the subscriber line in series with a subscriber line circuit (SLIC), as opposed to the Tabu's circuit, in which the variable-resistance element 100 (predetermined resistance) is placed in series with the ringing tone generator. More specifically, the term "predetermined resistance" used in claims 1 and 7 refers to, for example, resistors R1 to R 4 in FIGS. 2 and 7, or resistors R1 and R 2 in FIGS. 9 to 11. Those resistors take effect in silent periods, i. e., when the ringing voltage generator is disconnected from the line, and instead, SLIC is connected to the line.

Due to the resistors, electric energy charged in parasitic components on the subscriber line is released moderately at the beginning of a silent period without producing too much noise. In contrast to the present claimed invention, Tabu's variable-resistance element 100 takes effect in ringing periods, i. e., when the ringing voltage generator is connected to the line. With the variable-resistance element 100, the ringing signal is switched gradually, thus preventing switching noise from happening.

As can be seen from the above, the present invention is different from the Tabu reference in (a) where the additional resistance is inserted, (b) when the additional resistance takes effect, and (c) what the additional resistance does.

Further it is respectfully submitted the motivation for making such a combination of references as suggested in the Office Action is not found in either of the cited references but is gleaned from applicant's own disclosure. Neither reference makes such a suggestion and therefore there is not motivation to make such a combination of reference.

Since neither Doughty nor Tabu suggest subject matter of claims 1 and 7 or include any motivation to lead a skilled artisan to the applicant's invention as claimed the combination of


Doughty with Tabu would not make obvious to a skilled artisan the present invention as currently claimed.

It is respectfully submitted that claims 1-2 and 4-8 are allowable over the art.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,


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